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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/700,087	11/10/2000	Kirshna Chandra Persaud	3547 P 002	1449

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EXAMINER

PATEL, SHEFALI D

ART UNIT PAPER NUMBER

2621

DATE MAILED: 05/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/700,087

Applicant(s)

PERSAUD ET AL.

Examiner

Shefali D Patel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14, 17 and 21-28 is/are rejected.
- 7) ☒ Claim(s) 15-16, 18-20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date Z.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendment was received on February 12, 2004 (Paper No. 6B).
2. The abstract has been received and entered.
3. The title has been changed, accordingly.
4. Proper amendment to the specification has been received (Paper No. 9C) and entered.
5. Objections made to claims 5 and 15 have been withdrawn.
6. Applicants' have overcome 35 U.S.C. 112 2nd paragraph rejections and therefore those rejections have been withdrawn.
7. Drawings corrections to Figures 8, 7a, 7b, and 7c have been received.

Response to Arguments

1. Applicants' arguments with respect to claims 1-28 (Remarks: pages 8-11) have been considered but are moot in view of the new ground(s) of rejection. However, upon further consideration, a new ground(s) of rejection is made in view of US 4,378,569 (Dallas, Jr. et al.).
NOTE: Applicants' argue on page 11 of remarks regarding claim 20 rejected under 103(a) over Meijer in view of Dallas (US 4,378,569). However, applicants' only state "The addition of Dallas, Jr. does not overcome the deficiencies of the primary reference (i.e., Meijer) to render Applicant's invention obvious." Upon further consideration Dallas, Jr. et al. meets the elements recited in applicants' invention.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on February 05, 2004 (Paper No. 7) was filed after the mailing date of the First Action but before the mailing date of a Final

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Action. Accordingly, the information disclosure statement has been considered by the examiner and the references are listed on PTO-892 form.

NOTE: The Search Report (Paper No. 7) was submitted to satisfy the translation requirement for reference 1003022 A3 and 2-595-940, which do not have English translation when submitted with the IDS filed January 22, 2001 (Paper No. 3).

Claim Objections

3. Claim 4 is objected to because of the following informalities: Claim 4 line 2 the word "person=s" ought to be -- person's --. Appropriate correction is required.
4. Claim 28 objected to because of the following informalities: The preamble of claim 28 states "A portable device according to claim 23..." where claim 23 states "A device ...". Please change the preamble of claim 28 to be consistent with the preamble of claim 23. Appropriate correction is required.
5. Claim 18 objected to because of the following informalities: claim 18 line 2 discloses the word "comprise" which ought to be -- comprises --. Appropriate correction is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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7. Claims 1-14, 17, 21, 23-24, and 27 are rejected under 35 U.S.C. 102(b) as being anticipated by Dallas, Jr. et al. (USPN 4,378,569) (hereinafter, "Dallas").

With regard to **claim 1** Dallas discloses a method enabling a person to visualize images (See, Fig. 1) comprising the steps of: encoding spatial information (encoding video signal information by using audio modulation 12 into an acoustical representation. See, col. 3 lines 32-36) relating to a feature or features contained within an image (i.e., the visual images taken by a video camera. See, col. 3 lines 25-32) into the form of one or more polyphonic musical sequences (as more clearly seen in Fig. 2 that the video signal generator 10 passes information using 64 channels to an audio modulator 12 which outputs (in 64 channels) using 64 modulators. These 64 channels are single multi-frequency output and each 64 channels have different tone (i.e., polyphonic sequence) as disclosed at col. 3 lines 65 to col. 4 lines 1-4. See, col. 3 lines 45-68 to col. 4 lines 1-6)(image-to-sound conversion as seen in Fig. 1 and see col. 3 lines 32-42. Note: Dallas discloses the signal being of a music at col. 7 lines 5-21); and playing the musical sequence or sequence to the person (i.e., playing (outputting) the music sequence to the headphones thru which the person listens. See, col. 4 lines 4-6, Fig. 2 element 26.

With regard to **claim 2** it is inherent that the spatial information encoded by selecting a note or chord (note: Generally, music inherently includes notes and/or cords) dependent on (a distribution) of the feature or features along an axis (image scanning in vertical and horizontal directions, col. 3 lines 62-65).

With regard to **claim 3** Dallas discloses the image comprising a letter or a number (Dallas discloses broadly "Images" that is visual at col. 4 lines 24-29 and that includes a letter or a number).

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With regard to **claim 4** Dallas discloses the image comprising a person's environment (Dallas discloses broadly "Images" that is visual at col. 4 lines 24-29 and col. 5 lines 45-49).

With regard to **claim 5** Dallas discloses spatial resolution information by representing the image as a 2D image (the images (represented by video frames) at col. 3 lines 25-32 and col. 4 lines 24-29 has the representation of X-Y-axis (64 x 64 matrix), hence 2D image) and forming one or more musical sequence, each comprising a series of notes or chords (as described above in claim 1), in which i) each note or chord is selected dependent upon the distribution of the feature or features along a portion of the 2D image (as described in claim 2 and visual image is represented in 64 columns and 64 rows at col. 3 lines 25-32) and ii) different notes or chords in a sequence correspond to different portions of the 2D image (See, col. 3 lines 65 to col. 4 lines 1-4).

With regard to **claim 6** Dallas discloses the 2D image, which is divided into a matrix of pixels (See, col. 3 lines 25-32), and i) each note or chord is selected dependent upon the distribution of the feature or features along a column (or rows) of pixels (visual image represented by video frame is represented in 64 columns and 64 rows at col. 3 lines 25-32, col. 4 lines 34-50) and ii) different notes or chords in a sequence correspond to the distribution of the feature or features along different columns (or rows) of pixels (See, col. 3 lines 65 to col. 4 lines 1-4).

With regard to **claim 7** Dallas discloses a different note, which is associated with each pixel along a column (pixel in a column from 64 x 64 matrix array or 32 x 32 array, col. 4 lines 34-37, 41-43) and, if a feature recognized as being present in a pixel, the note corresponding to that pixel comprises part of the musical sequence (the output from a video signal 10 representing

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a pixel is summed and converted into an acoustical signal 12 as seen in Fig. 1. See, col. 3 lines 32-36 and col. 4 lines 58 to col. 5 lines 1-21).

With regard to **claim 8** Dallas discloses enabling a person to visualize moving features comprising the step of playing a plurality of musical sequences corresponding to different positions and/or orientations of the moving features (Dallas discloses a video camera in a video generator 10, col. 3 line 25, taking a sequence of image of an moving object and converting this to an acoustical signal, col. 3 lines 32-36 at different positions and/or orientation at col. 4 lines 24-30).

With regard to **claim 9** Dallas discloses a subset of a full image that is encoded into the musical sequence or sequences (see a subset (each row and column) being encoded in an acoustical signal from channels 1-64 as seen in Figs. 1-3).

With regard to **claim 10** Dallas discloses predetermined features that are extracted from the image, and said predetermined features are encoded into a musical sequence or sequences (as described above in claim 9, each features in each row and column, are predetermined and converted into an acoustical signal before summing up to obtain the entire image in an acoustical signal as seen in Fig. 1 and also at col. 4 lines 58-66).

With regard to **claim 11** Dallas discloses a feature being simplified by encoding a portion of the feature as a musical sequence (each feature (channels 1-64) is being simplified at 101, 103, 105 as seen in Fig. 5. See, col. 7 lines 55-64).

With regard to **claim 12** Dallas discloses the feature that is encoded by encoding different portions of the features as different musical sequences (See, col. 3 lines 65 to col. 4 lines 1-4).

With regard to **claim 13** Dallas discloses the image being encoded into the form of a plurality of musical sequences, which are played to the person as a melody (i.e., arrangements of sounds) (musical sequence of each feature are being converted in an acoustical signal and played to the person thru a headphones. See, col. 3 lines 32-36 and col. 4 lines 4-6).

With regard to **claim 14** Dallas discloses the image being encoded as a plurality of musical sequence (as described above), each corresponding to different spatial resolutions (different frequencies give different spatial resolutions. See, col. 4 lines 60-62).

With regard to **claim 17** Dallas discloses the notes and chords in the sequence having a duration, and the spatial resolution corresponding to a musical sequence being indicated by the duration of the notes and chords in the sequence (the listener is informed by a signal indicating the duration of the notes and chords between each images in the video frame. See, col. 4 lines 7-29).

With regard to **claim 21** Dallas discloses the feature or features having a brightness and the musical sequence or sequences having an intensity associated therewith, and wherein the brightness of the feature or features being encoded by varying the intensity of the musical sequence or sequences (See, col. 4 lines 2-6).

Claim 23 recites identical features as claim 1 except claim 23 is a device claim. Thus, arguments similar to that presented above for claim 1 is equally applicable to claim 23. Note, Dallas discloses a device as seen in Fig. 1.

With regard to **claim 24** Dallas discloses a video camera at col. 3 line 25.

With regard to **claim 27** Dallas discloses the playing means comprising an ear-piece (i.e., headphones) at col. 4 lines 4-6 and Fig. 1 element 26.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 22, 25-26, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dallas in view of Meijer (USPN 5,097,326).

With regard to **claim 22** Dallas discloses video frames of a moving object or a scene translating into sound patterns as disclosed above in claim 1. Dallas does not expressly disclose image motion cues being translated into equivalent sound patterns, which are utilized to segregate foreground features from background in 3D and produce information on relative depth between features. Meijer discloses the image motion cues are translated into equivalent sound patterns, which are utilized to segregate foreground features from background in 3D and produce information on the relative depth between features (See, col. 4 lines 14-21 and the 3D image at col. 7 lines 8-12). Dallas and Meijer are combinable because they are from the same field of endeavor, i.e., converting an image to sound representation. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching of Meijer with Dallas. The motivation for doing so is to distinguish between the background and foreground so the user can only listen to what is important (i.e., foreground information) and to eliminate the information not necessary for the user from the background as suggested by Meijer

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at col. 4 lines 14-21 by having an example of a 'white line.' Therefore, it would have been obvious to combine Meijer with Dallas to obtain the invention as specified in claim 22.

With regard to **claim 25** Meijer discloses a charge coupled detector at col. 13 lines 5-9.

With regard to **claim 26** Meijer discloses the encoding means comprising a microprocessor at col. 10 lines 27-37. Note: image processing unit shown in detail here is a microprocessor.

With regard to **claim 28** Meijer discloses an imaging means being a portable device at col. 2 lines 27-30.

Allowable Subject Matter

10. Claims 15-16 and 18-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The closest prior art to Dallas and Meijer are directed to a method and a device enabling a person to visualize images as disclosed in independent claims 1 and 23.

However, the closest prior art fails to disclose anything about the image having a center, and the image is being divided into two or more concentric zones, the zone at the center of the image being optionally encoded at a higher spatial resolution than the spatial resolution of the zone furthest from the center of the image as disclosed in claim 15. Further, the closest prior art fails to disclose a colour of the feature or features is being encoded by producing a musical sequence or sequences which comprises a plurality of different sets of waveforms mixed in variable rations, wherein the different sets of waveforms correspond to different sounding instruments having different characteristic harmonic waveforms as disclosed in claim 18. It is

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for these reasons in combination with all the other elements of the claim that claims 15 and 18 would be allowable if rewritten in independent form including all of the limitation of the base claim and any intervening claims. Claims 16 and 19-20 are allowable for the same reason as claims 15 and 18.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shefali D Patel whose telephone number is 703-306-4182. The examiner can normally be reached on M-F 8:00am - 5:00pm (First Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo H Boudreau can be reached on 703-305-4706. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


DANIEL MARHAM
PRIMARY EXAMINER

May 10, 2004

Shefali D Patel
Examiner
Art Unit 2621